

## **AMENDMENTS TO THE DRAWINGS**

Attached herewith is one (1) corrected drawing sheet to be substituted for the corresponding drawing sheet presently on file in the above-identified application. The attached replacement drawing sheet includes the changes to Figure 1. The replacement drawing sheet incorporates the changes required in reply to the Office Action dated December 1, 2006, and is not believed to add new matter to the original disclosure. More specifically, the changes are as follows:

In Fig. 1, reference designator “D<sub>A</sub>” has been included to identify the external diameter of the threaded section of the bone screw.

## REMARKS

This application has been reviewed in light of the Office Action dated December 1, 2006. Claims 1-15, 17, 18, and 20 are presented for examination. Claim 16 has been canceled, and its recitation incorporated into claim 1. Claim 20 has been added to provide Applicants with a more complete scope of protection. Favorable reconsideration is requested.

Applicants appreciate the Examiner's comment regarding the claim for foreign priority. Applicants will, under a separate submission, file a certified copy of the Swiss application as required by 35 U.S.C. § 119(b).

The Office Action objected to the drawings for failing to comply with 37 C.F.R. 1.84(p)(5) for not including reference signs "16", "17", and "D<sub>A</sub>" mentioned in the specification. In response thereto, Applicants have amended Figure 1 to include reference sign D<sub>A</sub>. Applicants have also amended the specification, specifically paragraph 0027 on page 4 to delete references to reference signs 16 and 17. It is believed that the objection to the figures has been remedied, and its withdrawal is therefore respectfully requested.

Claims 1, 2, 4, 9, 13, 14, and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,443,509 to Boucher et al. ("the '509 patent"). Claims 1, 3, 5-8, 10-12, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the '509 patent. Claims 1, 17, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,749,233 to Baldwin et al. ("the '233 patent") in view of the '509 patent.

As shown above, Applicants have amended independent claim 1 in terms that more clearly define what they regard as their invention. Applicants submit that this amended independent claim, together with new claim 19 and the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

Amended claim 1 is directed to a bone screw having a longitudinal axis. The bone screw includes a threaded shaft which includes a threaded section with an external diameter D<sub>A</sub>, a frontal thread end of the threaded section, and a thread profile. The thread profile has a front threaded flank directed towards the frontal thread end of the threaded section, a rear threaded flank and a flank angle  $\beta$ . The threaded section has a multiple thread, and each thread of the threaded section at the frontal thread end of the threaded section has a knife-like element with an outer edge and a cutting edge formed/disposed on the outer edge. The knife-like element, viewed from the frontal thread end of the bone screw, is sickle-shaped.

A feature of claim 1 is that the knife-like element when viewed from the frontal thread end of the bone screw is sickle-shaped.

The '509 patent, as understood by Applicants, relates to surgical bone-fixation screws, and more specifically to interference screws having the utility of securing a bone in a bone tunnel.

The Office Action states, with regard to the recitations of now canceled claim 16 which have been incorporated into claim 1, that the '509 patent discloses sickle-shaped knife-like elements. Specifically, the Office Action states, "when viewed from the tip 120 (Figure 4) the cutting edges 164 and 154 extend radially from the shaft 110, but then continue in a sickle shape with the cutting edges disposed on the outer edge." Applicants respectfully disagree with this characterization of the '509 patent. The Examiner asserts that the cutting edges, after extending radially from the shaft, continue in a sickle-shape with the cutting edges disposed on the outer edge. Applicants assume that the Examiner when asserting that the cutting edges continue in a sickle-shape is referring to the threads 150, 160.

Applicants assert that the '509 patent is silent with respect to the cutting edges 154, 164 continuing after having extended radially from the shaft 110. The '509 patent states at column 5, lines 36-59, that the threads 150 and 160 terminate at respective generally planar tip surfaces 152, 162 disposed substantially perpendicular to the longitudinal axis of screw 101. The intersections of the generally planar tip surfaces 152, 162 with respective rearward surfaces of threads 150, 160 form respective sharp cutting edges 154, 164. These cutting edges extend outward from the cannula bore 140 in a nearly radial direction. As is evident from Figure 4, each planar tip surface 152, 162 forms the general shape of a triangle, with the cutting edges 154, 164 extending radially outward from the cannula bore 140. The cutting edges 154, 164 themselves have a linear property, not a sickle shape property. Further, the cutting edges 154, 164 are formed, as stated in the '509 patent, by the intersections of the generally planar tip surfaces 152, 162 with the respective rearward surfaces of the threads 150, 160. That is, the threads 150, 160 do not form part of the cutting edges 154, 164, as implied by the Office Action. Neither Figure 4, nor any discussion pertaining to Figure 4 in the '509 patent discloses that the cutting edges 154, 164 continue in the manner suggested by the Examiner. Further, the threads 150, 160 have a helix or spiral shape, not a sickle shape (crescent-shape). Applicants submit that nothing has been found in the '509 patent that teaches or suggests a knife-like element when viewed from the frontal thread end of the bone screw is sickle-shaped, as recited in claim 1.

For at least the above reason, Applicants submit that claim 1 is clearly patentable over the '509 patent.

As correctly stated in the Office Action at page 5, the '233 patent fails to disclose a knife-like element with a cutting edge at the frontal thread end of the threaded section. Accordingly, amended claim 1 is clearly patentable over the '233 patent. Applicants further submit that a combination of the '509 patent and the '233 patent, assuming such combination would even be permissible, would also fail to teach or suggest a knife-like element when viewed from the frontal thread end of the bone screw is sickle-shaped, as recited in claim 1.

Accordingly, claim 1 is patentable over the cited art, and Applicants respectfully request withdrawal of the rejections under 35 U.S.C. §§ 102(b) and 103(a).

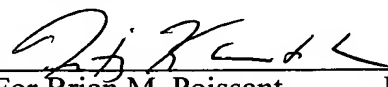
Claim 20 similarly recites a knife-like element at the front end of the bone screw having a sickle-shape with a cutting edge disposed on the outer edge.

The other claims in this application are each dependent directly or indirectly from claim 1 and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the above, it is respectfully submitted that the present application is in a condition for allowance. A favorable disposition to that effect is respectfully requested. Should the Examiner have any questions or comments concerning this submission, he is invited to call the undersigned at the phone number identified below.

Respectfully submitted,

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